

CEE1: Introduction to Civil & Environmental Engineering

Undergraduate Program

by

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Civil & Environmental Engineering Department
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October 1, 2021



Curriculum (183 units)

- General education (GE) requirements (33 units)
- Preparation for the major (58 units)
- The Major (92 units)
 - *Core Major Courses (48 units)*
 - *Major Field Electives (32 units)*
 - *Technical Breadth Electives (12 units)*

Curriculum (183 units)

- General education requirements (33 units)
 - *Elementary writing (Writing I; 5 units)*
 - *Engineering ethics (Writing II; 4 units)*
 - *Foundations of knowledge (24 units):*
 - *Arts and humanities (10 units)*
 - *Society and culture (10 units)*
 - *Scientific Inquiry (4 units)* ➡ automatically satisfied by the natural science requirement (see below)

Curriculum (183 units)

- Preparation for the major (58 units)
 - Chemistry & Biochemistry 20A, 20B, 20L (11 units)
 - Introduction to Civil Engineering CEE1 (2 units)
 - Matlab M20 or C++ CS31 (4 units)
 - Math 31A, 31B, 32A, 32B, 33A, 33B or MAE82 (24 units)
 - Physics 1A, 1B, 1C, 4AL (17 units)
 - Natural Science (~~4~~ units)

Curriculum (183 units)

- The Major (92 units)

- ★ *Core Major Courses (48 units)*

- *Thermodynamics (ChE 102A or MAE 105A)*
 - *Statics and Dynamics (CEE 91 or MAE 101, CEE 102)*
 - *Applied Numerical Computing (CEE 103)*
 - *Mechanics of Deformable Solids (CEE 108)*
 - *Probability and Statistics (CEE 110 or CEE C111)*
 - *Soil Mechanics (CEE120)*
 - *Structural Analysis (CEE 135A)*
 - *Hydrology (CEE 150)*
 - *Environmental Engineering (CEE153)*
 - *Materials Science (C104 or MSE 104)*
 - *Fluid Mechanics (MAE 103)*
 - *Professional Practice (CEE 190)*

Curriculum (183 units)

★ Major field electives (32 units)

▸ Specializations

- Environmental Engineering (154, 155, C159, 164, M165, M166, [156A](#), [156B](#), [157B](#), [157C](#))
- Geotechnical Engineering (125, C128, [120L](#), [129L](#), [121](#), [C123](#))
- Structural Engineering and Mechanics (125, 130, 135B, M135C, C137, 142, 148, [108L](#), [135L](#), [140L](#), [141](#), [143](#), [144](#), [147](#))
- Civil Engineering Materials (C104, C105, C106, C111, C182, [108L](#))
- Hydrology and Water Resources Engineering (157A, C158, [129L](#), [157L](#), [151](#), [152](#))
- Transportation Engineering (180, C181, C182, C185, C186)

▸ *Two laboratory courses are required from two distinct areas*

▸ *Two design courses are required, one of which must be a capstone design course selected from [C123](#), [144](#), [147](#), [152](#), [157B](#), [157C](#)*

Curriculum (183 units)

- Professional Practice CEE190 (offered in Fall term)
 - ★ *CEE190 is the pre-requisite for capstone design courses*
(C123, 144, 147, 152, 157B, 157C)
 - ★ *Co-requisites: at least one of the following courses*
 - *Foundation Design (CEE 121, Winter)*
 - *Steel Design (CEE 141, Fall)*
 - *Reinforced Concrete Design (CEE 142, Winter)*
 - *Water Resources Engineering (CEE 151, Winter)*
 - *Water & Wastewater Treatment (CEE 155, Fall)*

Structures Undergraduate Courses

Analysis

- 130: Elementary Structural Mechanics
- 135A: Elementary Structural Analysis
- 135B: Intermediate Structural Analysis
- M135C: Introduction to Finite Element Methods
- C137: Elementary Structural Dynamics

Design

- 141 Steel Structures
- 142 Design of Reinforced Concrete Structures
- 143 Design of Pre-stressed Concrete Structures
- 144 Structural Systems Design
- 147 Design and Construction of Tall Buildings
- 148 Design of Wood Structure
- 188 Design of Masonry Structures

Laboratory

- 135L: Structural Analysis and Testing Laboratory
- 140L: Structural Components and Systems Testing Laboratory

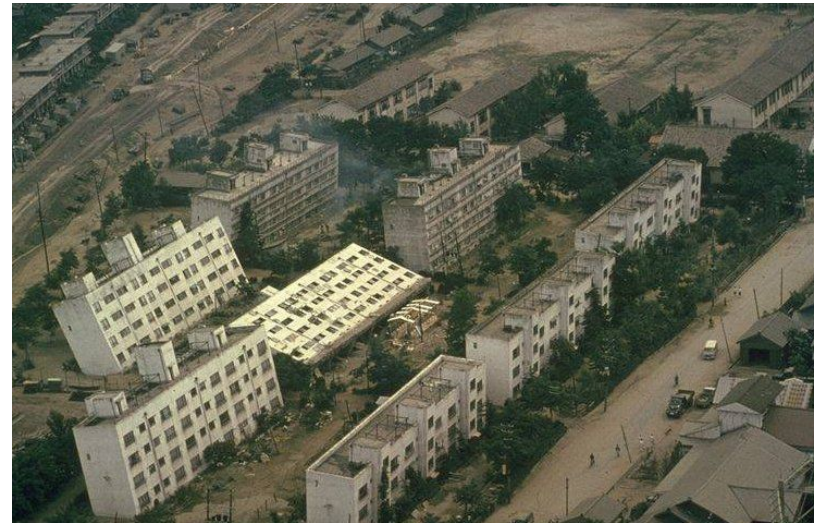
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Geotechnical Undergraduate Courses

- CEE 120: Principles of Soil Mechanics (Required)
- CEE 121: Design of Foundations and Earth Structures
- CEE C123: Advanced Geotechnical Design
- CEE 125: Fundamentals of Earthquake Engineering
- CEE C128: Geohazards and Infrastructure Resilience
- CEE 120L: Soil Mechanics Laboratory
- CEE 129L: Engineering Geomatics



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Environment Undergraduate Courses



Assessment/Prevention

- 153. Intro to Environmental Engineering Science
- 154. Chemical Fate & Transport in Aquatic Environments
- M166. Environmental Microbiology

Treatment

- 155. Unit Operations and Processes for Water and Wastewater Treatment
- 157B. Design of Water Treatment Plants

Remediation

- 164. Hazardous Waste Site Investigation and Remediation
- M165. Environmental Nanotechnology: Implications and Applications

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Hydro/Water Undergraduate Courses

Junior year

CEE 150: Introduction to Hydrology: Understanding/modeling processes in the hydrologic cycle

CEE 151: Introduction to Water Resources Engineering: Hydraulics, pipe flow, and open channel flow for water conveyance infrastructure

Senior year

CEE 157A: Hydrologic Modeling: Build/implement/run simulation models used in industry

CEE 157L: Hydrologic Analysis: Watershed analysis, field studies, modeling

CEE 152: Hydraulic and Hydrologic Design: Capstone design project

CEE 199: Undergrad. Research/Independent Study: Indep. studies with faculty

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Materials Undergraduate Courses

CEE 104: Structure, Processing, and Properties of Civil Engineering Materials

Understanding the structure, properties, and manufacturing of civil engineering materials (focus on concrete)

CEE C105/205: Structure and Properties of Amorphous Civil Engineering Materials

How do materials' structures control their mechanical properties (focus on glasses)

CEE (C106)/206: Modeling and simulation of engineering materials

How can numerical simulations be used to optimize civil engineering materials

CEE C182/282: Rigid and Flexible Pavements: Design, Materials, and Serviceability

Material selection (asphalt/concrete) and theory of pavement design

CEE 199: Undergraduate Research/Independent Study

Independent studies with CV-MAT faculty

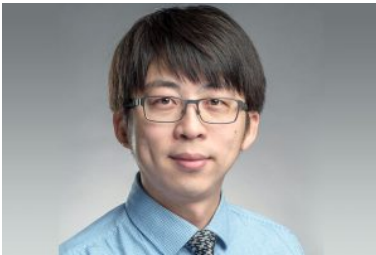
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Transportation Undergraduate Courses

- C&EE 180: Introduction to Transportation Engineering
- C&EE C181/281: Traffic Engineering Systems – Operations and Control
- C&EE C185/285: Transportation Systems Analysis
- C&EE C186/286: Intelligent Transportation Systems
- New courses on transportation equity, environment, and infrastructure data



Jiaqi Ma
Associate Professor



Regan Patterson
Assistant Professor



Tierra Bills
Assistant Professor

Curriculum (183 units)

★ *Technical Breadth Requirement (12 units)*

- ▶ *Three technical courses that are taken outside the student's major and that are not similar to courses used to satisfy the requirements of the major.*
- ▶ *Examples include*
 - ▶ *Technology Management*
 - ▶ *Nano-Technology*
 - ▶ *Bioengineering*
 - ▶ *Energy and the Environment*
 - ▶ *Geology*
 - ▶ *Urban Planning*
 - ▶ *Computer Science*
- ▶ *See the list of approved courses at*
<http://www.seasoasa.ucla.edu/wp-content/uploads/seasoasa/TBA.pdf>

Undergraduate Advising

- HSSEAS Office of Academic and Student Affairs (OASA)
Academic Counselors
 - *They provide guidance for selecting courses, clarifying curriculum requirements, breadth requirement, etc.*



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Undergraduate Advising

- Faculty Advising

- ▶ *Students are assigned a **faculty advisor** upon admission to the Department.*
- ▶ *Students must meet their advisor **at least once per year**, typically during Department advising week during the 2nd week of each quarter.*
- ▶ *Purpose is to **discuss big picture issues** like career choice following graduation, graduate school admissions, etc., provide guidance for selecting courses, clarifying curriculum requirements, etc. Breadth Requirement*

Undergraduate Advising




1. How long did you meet with your faculty advisor? ★

Question type : Single answer -- Radio Button

We didn't meet	0 (0%)	
1-15 minutes	26 (50%)	
16-30 minutes	19 (36.5%)	
more than 30 minutes	7 (13.5%)	

Undergraduate Advising

2. How helpful was the meeting? ★

It was nice to meet with my advisor and I got some really good advice.	36 (69.2%)	
It was nice to meet with my advisor.	16 (30.8%)	
The meeting was not helpful.	0 (0%)	

Academic Dishonesty

- We take Academic Dishonesty very seriously, and students have been suspended from UCLA for cheating in our courses.
- 75 to 98% of college students admit to cheating. Engineers are among the most likely to cheat (http://education-portal.com/articles/75_to_98_Percent_of_College_Students_Have_Cheated.html)
- Forms of Academic Dishonesty include: Cheating, Fabrication, Plagiarism, Multiple Submissions, Facilitating Academic Dishonesty, and Coercion Regarding Grading or Evaluation of Coursework
- Policies regarding Academic Dishonesty are specified in the Student Code of Conduct at

<http://www.deanofstudents.ucla.edu/assets/documents/StudentCC.pdf>.

Department Webpage: cee.ucla.edu

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UCLA MyEngineering

Jian Zhang Log out

Oct 3, 2019 (Fall 2019 - week 1)

Home

Accessibility Help & Feedback About

Term: Fall 2019 Go

Instructor of [?]

C&EE 232, LEC 1
Additional resources: [Activated](#)
C&EE 296, SEM 20
Additional resources: [Not Activated](#)
C&EE 596, TUT 22
Additional resources: [Not Activated](#)
C&EE 597A, TUT 22
Additional resources: [Not Activated](#)
C&EE 597B, TUT 22
Additional resources: [Not Activated](#)
C&EE 597C, TUT 22
Additional resources: [Not Activated](#)
C&EE 598, TUT 22
Additional resources: [Not Activated](#)
C&EE 599, TUT 22
Additional resources: [Not Activated](#)

My Tools

Civil And Environmental Engineering Staff Accreditation

My Profile

My Ugrad Advisees
Record Meetings
Set Meeting Times/Email

To: Active Faculty Undergraduate Advisors
(Click to set your quarterly advising meeting times and email your advisees)

Your UCLA Official Email Address is being displayed for students: zhangj@ucla.edu
(Please make sure this email address is current. Instructors contact Payroll Office. TAs go to [MyUCLA](#))

Instructor/TA Instructional Tools

- **Activating SEASNET resources:** To activate resources for your students (and TA) such as Matlab, click on the "Not Activated" link by the course number in the left section of you're My Engineering home page (this page).
- **Basic course support:** For basic course support including posting assignments, electronic assignment submission, class announcements, class forum, emailing your class, use [CCLE](#)
- **Entering scores and computing grades:** For entering scores, implementing grading rubrics, and submitting grades to the registrar, HSSEAS recommends **MyUCLA Gradebook**, which can be accessed by clicking on Gradebook for the specific course on [MyUCLA](#). A good tutorial on the MyUCLA Gradebook is available at [MyEngineering:Gradebook How-to](#). CCLE also has a gradebook tool, but the MyUCLA Gradebook is more stable and has a built-in capability to include participation in the course survey as a small percentage of the grade.
- **Grade changes after the quarter is over:** This can be done online through the MyUCLA Gradebook at [MyUCLA](#). Select the quarter for the class in which you need to change a grade, then select the gradebook. Once in the gradebook, click on the link at the top entitled "NEW: Late Final Grades or Final Grade Changes online!" and follow the instructions.
- **Course evaluations:** The specific instructions about how to include course evaluation survey participation as a small part (sav 1%) of the grade is available at

Browse Classes

Bioengineering
Chemical and Biomolecular Engineering
Civil and Environmental Engineering
Computer Science
Electrical and Computer Engineering
Engineering
Materials Science and Engineering
Mechanical and Aerospace Engineering
Master of Science in Engineering Online

HSSEAS Links

HSSEAS
Academic and Student Affairs
Bioengineering
Chemical and Biomolecular Engineering
Civil and Environmental Engineering
Computer Science
Electrical and Computer Engineering
Materials Science and Engineering
Mechanical and Aerospace Engineering

MyEngineering

My sites

ccle.ucla.edu/my/

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UCLA CCLE | Shared System

Need Help ?

ZHANG, JIAN 

Find a site

Type: ☒ Collab ☒ Course

Search: ☒ Title ☒ Description

Browse by

Subject area

Division

Instructor

Collaboration sites

JIAN ZHANG

Fall 2019 - Week 1

My sites

Class

Collaboration

Term:

Fall 2019

Civil and Environmental Engineering 232

LEC 1 - Theory of Plates and Shells

DARS (www.seasoasa.ucla.edu/dars)



The screenshot shows a web browser window with the address bar displaying www.seasoasa.ucla.edu/undergraduates/DARS. The browser's address bar also shows a search bar with the text "ucla hsseas dars". The page features a navigation menu with links for "Most Visited", "Getting Started", and "CEE Current News". The main header includes the "UCLA ENGINEERING" logo and the text "Office of Academic and Student Affairs". A large banner image shows a group of people in a hall. Below the banner is a navigation bar with links for "Staff", "Admissions", "High School", "Undergraduates", "Seniors", "Grad Students", and "Student Opportunities". The "Undergraduates" link is highlighted. The main content area displays the "Degree Audit Reporting System (DARS)" title, a "Frequently Asked Questions (FAQs) regarding the DARS audit." section, and a red text block stating: "HSSEAS undergraduate students may use DARS (Degree Audit Reporting System) to see the credit they have received and determine which requirements of their degree are left to complete. Students admitted to UCLA Fall 2012 and thereafter utilize UCLA's Degree Audit System which". A sidebar on the left contains a "Google Custom Search" box and a list of links: "New Undergraduates", "Change of Major", "Counselors", and "Degree Audit Reporting System (DARS)".

UCLA ENGINEERING
Office of Academic and Student Affairs

Staff Admissions High School Undergraduates Seniors Grad Students Student Opportunities

→ Home → Undergraduates → Degree Audit Reporting System (DARS) LOG IN

Degree Audit Reporting System (DARS)

Frequently Asked Questions (FAQs) regarding the DARS audit.

HSSEAS undergraduate students may use DARS (Degree Audit Reporting System) to see the credit they have received and determine which requirements of their degree are left to complete.

Students admitted to UCLA Fall 2012 and thereafter utilize UCLA's Degree Audit System which

New Undergraduates
Change of Major
Counselors
▶ Degree Audit Reporting System (DARS)



If I have seen further than others, it is by standing upon the shoulders of giants.
-Isaac Newton